Ch 5 Questions

1**) Why is business process modeling important? Pg. 158-159**

It is important because it helps us illustrate the different activities and processes that are performed and how objects move throughout a business process. Business process models help us make sense of various systems and processes that business have (or will have) implemented. They help us make sense out of the requirements we gather from our “clients” and also help display our understanding of the requirements back to the user.

**2) What is the purpose of an activity diagram?**

Activity diagrams can be viewed as sophisticated data flow diagrams that are used in conjunction with structured analysis. Unlike data flow diagrams, activity diagrams include notation that addresses the modeling of parallel, concurrent activities and complex decision processes

**3. What is the difference between an activity and an action?**

The only difference is that an activity can be decomposed further into a set of activities and/or actions, whereas an action represents a simple non-decomposable piece of the overall behavior being modeled.

**4) What is the purpose of a fork node?**

The fork node is one of seven control nodes used in the activity diagram. Its purpose is used to split the behavior of the business process into multiple parallel or concurrent flows. Unlike the decision node, the paths are not mutually exclusive (both paths are executed concurrently).

**5. What are the different types of control nodes?**

A) initial

B) final-activity

c) Final-flow

d) decision

E) Merge

F) Fork

G) Join

**6) What is the difference between a control flow and an object flow? Pg. 162**

A control flow in an activity diagram models the paths of execution through a business process. They can only be attached to actions or activities. They are portrayed as a solid line with an arrow representing the direction of flow.

An object flow in an activity diagram models the flow of objects through a business process. Due to objects being modified or transformed, object flows are necessary to show the actual objects that flow into and out of actions or activities. These are portrayed as a dashed line with an arrow representing the direction of flow.

**7) What is an object node?**

An object node is used to represent an object that is connected to a set of object flows.

**8. How is use case diagramming related to functional modeling?**

They portray the basic functions of the system- that is, what the users can do and how the system should respond to the user’s actions.

**9) Explain the following terms and use layperson’s language as though you were describing them to a user:**

1. Actor – An actor can be represented as a stick figure on the diagram. It represents a role that a user can play while interacting with the system. An actor can also represent another system in which the current system interacts.

i. Basically, actors represent the principle elements in the environment in with the system operates by providing input, receiving output, or both

1. Use-case – these are simple descriptions of a system’s functions portrayed in a diagram (what the users can do and how the system would respond to the user’s actions)
2. System boundary – I could not find a system boundary but I did find a subject boundary

b. Subject boundary is a box enclosing the use-case, that defines the scope of the system and clearly delineates what parts of the diagram are external or internal to it.

1. Relationship – Use case relationships explain how the use case is related to other use cases and users. There four types of relationships: association, extend, include, and generalization.

**10. Every association must be connected to at least one use case and one actor. Why?**

Because the association typically represents two-way communication between the use case and the actor. If the communication is only one way, then a solid arrowhead can be used to designate the direction of the flow of information.

**11) What is CRUD? Why is this useful? Pg. 179**

CRUD stands for create, read, update, delete. It is used in the third step of identifying use cases to help identify various tasks that “actors” must perform for a system to be a success. Using a CRUD analysis (and CRUD matrices), we are able to identify specifically, what actions each actor must perform within a use-case. More organized way of depicting what each actor must do.

**12) How does a detail use case differ from an overview use case?**

An overview use case documents only basic information about the use case, such as its name, ID number, primary actor, type, and a brief description. On the other hand, a detail use case typically documents, as far as possible, all the information needed for the use case.

**13. How does an essential use case differ from a real use case?**

An essential use case is one that describes only the minimum essential issues necessary to understand the required functionality. A real user case goes further and describes a specific set of steps.

**14) What are the major elements of an overview use case?**

An overview use case is used to enable the analyst and user to agree on a high-level overview of the requirements. The detailed elements of the use-case are :

1. A detail use case typically documents as far as possible, all the info needed for the use case.
2. An Essential use case is one that describes only the minimum essential issues necessary to understand the required functionality.
3. A real use case goes further and describes a specific ser of steps.

**15. What are the major elements of a detail use case?**

A) Overview Information

B) Relationships

C) Flow of Events

D) Optional Characteristics

**16) How do you create use cases?**

Following the thirteen (plus four) steps on pg 178, we use activity diagrams to identify who is involved in an activity (the actor) and the boundaries (scope) of their respective activities. It is also necessary to determine their goals are for the specific use case activity. After these details have been identified, we write a broad overview of each major use case, just to give us an idea of what will be happening. We then go back and fill in the details of each use case (including the flow of events), and list any alternate flows that may be applicable. After each use case has been refined and details have been filled in, we draw a use case diagram to depict the flow of events and the associations between the actors and their actions.

**17) Why do we strive to have about three to nine major use cases in a business process?**

To make diagrams easier to read and keep the models at a reasonable level of complexity.

**18. How do you create use-case diagrams?**

1. The use-case diagram starts with subject boundary. This forms the borders of the subject, separating uses cases from actors.

2. The use cases are drawn on a diagram. These are taken directly from the detailed use-case descriptions.

3. The actors are placed on the diagram. The actors are taken directly from the primary actor element on the detailed use-case description.

4. Draw lines connecting the actors to the use cases with which they interact. No order is implied by the diagram, and the items added along the way do not have to be placed in a particular order; therefore, it may help to rearrange the symbols a bit to minimize the number of lines that cross, making the diagram less confusing.

**19) What are some heuristics for creating a use case diagram?**

a) Set up the subject boundary, in order to set up the border around the subject which separates use cases from actors.

b) The use cases are drawn on the diagram and these are taken directly from the detailed use-case descriptions. Special use-case associations (include, extend, or generalization) are also added at this point.

c) The actors are then placed on the diagram. The actors are taken directly from the primary actor element on the detailed use-case description.

d) Lastly, draw lines connecting actors to use cases with which they interact. The diagram implies no order and the items added along the way do not have to be placed in a particular order.

**20. Why is iteration important in creating use cases?**

One of the most positive aspects of the Iterative development process is that it addresses the problem of not knowing where you really are until you start trying to integrate the parts (fairly far into the project), only to find out that things do not fit together quite as well as you thought they would. An iterative approach addresses certain kinds of risks sooner by implementing and integrating risky components earlier in the process. The reason this reduces risk is that you can really only know whether you have alleviated a risk after you have actually tried to build something and put the pieces together.

**21) What is the viewpoint of a use case, and why is it important? Pg. 166**

The viewpoint of a use case is a “bird’s eye view” (overall view). They are important because they are functional diagrams that portray the basic functions of the system. In other words, they help us represent what the users can do and how the system should respond to a user’s actions. Additionally, they help us describe the requirements that an information system must meet

**22) What are some guidelines for designing a set of use cases? Give two examples of the extend associations on a use-case diagram. Give two examples for the include associations.**

Some guidelines are having a subject boundary, identifying the major use cases, expanding major use cases, confirming the major use cases, and creating a use-case diagram.

Two examples of extend association is: Make payment arrangements for a doctor visit is an extend of Make Appointment for a visit. ( this is on page 177 ) also update patient information extends on Make old patient appointment .

An include would be like Produce Schedule Information includes Manage Schedule which includes Record Availability. (To best understand this go to page 176 and read under Use Case and refer to diagram on page 177)

**23. Which of the following could be an actor found on a use-case diagram? Why?**

Ms. Mary Smith, Supplier, Customer, Internet customer, Mr. John Seals, Data entry clerk, Database administrator

Ms. Mary Smith is not an actor on a use-case diagram, because actors are not specific users.

Supplier is an actor. It is a role that the user can play while interacting with the system.

Customer is also an actor, because it interacts with the system

Internet customer is an actor. Even though it is a specialized role, it still interacts with a system.

Mr. John Seals isn’t an actor, because he is a specific user.

Data entry clerk is an actor. It would interact with the system.

A database administrator is also an actor on the use-case diagram. They would interact with the system.

**24) What is a use case point? What is it used for?**

A use case point are based on the same ideas from which function points (Chapter 3) were developed, however they have been refined to take into consideration the unique features of use-case and object orientation. To estimate Size and Effort using use-case points, the use-case diagrams must be created.

**25. What process do we use to estimate systems development based on use cases?**

We use the process of Use-Case Points as our size and effort estimation technique. Use-case points are based on the same ideas from which function points were developed. However, they have been refined to take into consideration the unique features of use cases and object orientation.